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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/541,093

06/29/2005

Toshiyuki Fujine

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EXAMINER

RAINEY, ROBERT R

ART UNIT

PAPER NUMBER

2629

NOTIFICATION DATE

DELIVERY MODE

05/15/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/541,093	Applicant(s) FUJINE ET AL.	
	Examiner ROBERT R. RAINEY	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,6-12,14,16-22,25 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,13,23 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/29/05,11/28/05,9/26/07,10/10/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 2, 3, 6-12, 14, 16-22, 25, and 26 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 11 February 2008.
2. Applicant's election with traverse of Species II (corresponding to claim numbers 4, 5, and 15 with claim numbers 1, 13, 23, and 24 generic) in the reply filed on 11 February 2008 is acknowledged. The traversal is on the ground(s) that the various species depend from generic claim 1 or 13 and that because of this they are all part of a single inventive concept. This is not found persuasive because the structure Applicant describes is the definition of species with a common generic claim. Applicant is correct that, should a generic claim be found to be allowable, the species tied together by that generic claim would all be rejoined because at that point they would be characterized as containing a special technical feature in common.

The requirement is still deemed proper and is therefore made FINAL.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

4. Figures 15-21 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. **Claim 1** objected to because of the following informalities: The word "transition" is misspelled as "transitin". Appropriate correction is required.

6. **Claim 5** objected to because of the following informalities: claim 5 states that the coefficient used for an interlaced signal is **larger** than that used for a progressive signal. This appears to be an error. At several locations, including page 11 at about line 20 and page 44 at about line 10, the opposite assertion is made. If this is not an error please explain where it is disclosed in the specification. Note that if this is an error then page

12 at about line 19 needs to be changed as well since the same error is made there.

Appropriate correction is required.

Note

7. As a notational convenience Examiner uses the notation "I-P" in some instances to indicate a signal originally in an interlaced format that is converted to a progressive format and also sometimes uses "I" to represent "interlaced format" and "P" to represent "progressive format".

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 23 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. This claim recites only "A program for a computer ... the program causing the computer to perform a step of ...". This does not fall into one of the statutory categories of invention.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 1, 13, 23, and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,095,393 to *Lee* ("*Lee*") in view of U.S. Patent No. 6,753,831 to *Ide et al.* ("*Ide*").

As to **claim 1**, *Lee* discloses a liquid crystal display apparatus that corrects optical response characteristics of a liquid crystal display panel, by subjecting image data supplied to the liquid crystal display panel to enhancing conversion at least in accordance with image data of a directly previous vertical period and image data of a current vertical period (see for example column 12 lines 47-57), the liquid crystal display apparatus comprising: signal type detection section for detecting whether a signal type of input image data is of a particular type (see for example column 13 lines 18-20, especially "static graphics or moving graphics"); and enhancing conversion section (see for example Figs. 8 and 9) for subjecting the image data to the enhancing conversion, in a direction of gray level transition (see for example Fig. 5), in accordance with a result of detection by the signal type detection section, a degree of the enhancing conversion of the image data by the enhancing conversion section being varied (see for example Fig. 9 and column 13 lines 11-24, wherein lines 18-20 especially mention varying the conversion based on signal type).

Lee does not expressly disclose a signal type detection section for detecting whether a signal type of input image data is a progressive signal or an

interlace signal and an I/P conversion section for converting an interlace signal to image data that is a progressive signal, if the input image data is an interlace signal; and varying the degree of the enhancing conversion of the image data by the enhancing conversion section based upon whether the input image data is a progressive signal or an interlace signal.

Ide discloses a display device designed to ensure that image processing parameters are transferred in response to switching between input video signals (see abstract) and in particular: a signal type detection section for detecting whether a signal type of input image data is a progressive signal or an interlace signal (see for example Fig. 1 label "INPUT VIDEO SELECTING SIGNAL" and item 1, noting that of the input labels to item 1 at least the "PC VIDEO SIGNAL" is a progressive signal and at least the "NTSC TV SIGNAL" is an interlaced signal) and an I/P conversion section for converting an interlace signal to image data that is a progressive signal, if the input image data is an interlace signal (see for example Fig. 4 item 33 and column 4 lines 23-27); and varying the degree of the enhancing conversion of the image data by the enhancing conversion section based upon whether the input image data is a progressive signal or an interlace signal (see for example column 3 lines 60-65 and column 4 lines 8-46 and Fig. 4 noting that each of items 32, 34, 35, and 36 perform an enhancement, i.e. enhancing conversion, of the video data based upon parameters that are specific to the type of video signal).

Lee and *Ide* are analogous art because they are from the same field of endeavor, which is flat panel type displays.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to add interlaced or progressive detection, I/P conversion and differentiation of image processing based upon interlaced or progressive detection as disclosed by *Ide* to the system disclosed by *Lee*. The suggestion/motivation would have been to provide advantages such as to provide signal processing appropriate to the signal type (see for example *Lee* column 1 lines 22-33).

Claim 13 represents the method implicit in the apparatus claimed in claim 1 and is rejected on the same grounds and arguments as claim 1.

Claims 23 and 24 are rejected on the same grounds and arguments as claim 1 with the following additional grounds arguments:

Examiner takes official notice that stored program control of image processing was well known to those skilled in the art at the time of the invention as was storing programs on a recording medium.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided a program for controlling the liquid crystal display according to the method implicit in the rejection of claim 1 and to have stored this program on a recording medium.

11. **Claims 4, 5, and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,095,393 to *Lee* ("*Lee*") in view of U.S. Patent No. 6,753,831 to *Ide et al.* ("*Ide*") and further in view of JP2003143556 to *Nitta et al.* ("*Nitta*").

As to **claim 4**, in addition to the rejection of claim 1 over *Lee* and *Ide*:

Lee further discloses the use of multiple table memories that are referred to based upon the value of a parameter that affects display performance that store an enhancing conversion parameter specified by the image data of the current vertical period and the image data of the directly previous vertical period, the particular table being referred to according to the value of the parameter (see for example column 9 lines 3-13), the enhancing conversion means including an operation section that performs, using the enhancing conversion parameter read out from the selected table memory in accordance with the result of detection of the parameter value, an operation on the image data so as to enhance the image data (see for example column 9 lines 3-13 and column 2 lines 25-33).

Ide further discloses a first table memory that stores an enhancing conversion parameter, the first table memory being referred to when the input image data is a progressive signal (see for example column 3 lines 60-65 in which the first table memory corresponds to the table memory containing "the image processing parameter group DP" corresponding to "the PC video signal"); and a second table memory that stores an enhancing conversion parameter, the

second table memory being referred to when the input image data is an interlace signal (see for example column 3 lines 60-65 in which the first table memory corresponds to the table memory containing "the image processing parameter group DP" corresponding to "the NTSC television signal"), the enhancing conversion means including an operation section that performs, using the enhancing conversion parameter read out from the first or second table memory in accordance with the result of the detection by the signal type detection means, an operation on the image data so as to enhance the image data (see for example column 3 lines 60-65 and column 4 lines 8-46 and Fig. 4 noting that each of items 32, 34, 35, and 36 perform an enhancement, i.e. perform an operation on the image data so as to enhance the image data, of the video data based upon parameters that are specific to the type of video signal).

Lee and Ide do not expressly disclose tables that contain parameters specified by the image data of the current vertical period and the image data of the directly previous vertical period that are referred to according to whether the input image data is interlaced or progressive.

Nitta discloses a display device with I-P conversion and overdrive processing and that there are issues with overdrive processing of I-P converted video separate from those of native P video that make it advantageous to perform overdrive processing of I-P converted video differently than overdrive processing of native progressive video (see for example abstract).

Lee, *Ide*, and *Nitta* are analogous art because they are from the same field of endeavor, which is flat panel type displays.

Since the explanation of the obviousness of the invention over the prior art is somewhat involved, Examiner will first summarize the teachings of the combination of *Lee* and *Ide* as made above.

Lee teaches a method of overdrive processing that involves switching between overdrive parameter tables in order to adapt the overdrive to changing needs (note that *Lee* teaches that several inputs may be used to determine the tables referenced, mentioning specifically "temperature, taste of a user, and environment" at column 2 lines 25-33, elsewhere still or moving images are given as two examples of environment differences). *Ide* teaches receiving multiple video types including interlaced and progressive video types and performing I-P conversion on the interlaced video and varying image processing based on the detected video type. This combination provides a plurality of overdrive parameter tables indexed by a plurality of inputs. The only thing lacking is one of these inputs being P versus I-P. Refer to this combination as *Lee/Ide*.

Thus the prior art included a device, *Lee/Ide*, similar to that of the claimed invention. There were design incentives and market forces that would have prompted adaptation of *Lee/Ide*, including for example: a market force, which was the drive to improve image quality; a market force, which was to speed development by reusing a known implementation, that is there was an incentive to adapt the multiple table method of *Lee/Ide* to improve the display of the

various video types rather than try to develop some other type of scheme. The differences between the prior art, *Lee/Idé*, and the claimed invention were encompassed in known variations or in principles known in the prior art. Known variations included: LCDs with full overdrive processing and without overdrive processing – this provided the known endpoints for the adaptation investigation; performing overdrive processing of video originally in an interlaced format differently than overdrive processing of video originally in a progressive format in order to overcome challenges specific to I-P converted signals as taught for example by *Nitta* – this teaching provides the evidence that one of ordinary skill would know to look for differences in the response of native P and I-P signals to overdrive processing; and referring to different tables of image processing parameters based on whether the video was originally in an I or P format as taught for example by *Idé* – this teaching provides the evidence that one of ordinary skill would know to use the detection of the video type as one of the inputs used to select tables of image processing parameters specific to the detected video type. One of ordinary skill in the art, in view of the identified design incentives and market forces, could have implemented the claimed variation of the prior art, and the claimed variation would have been predictable to one of ordinary skill in the art.

Therefore, it would have been obvious to one of ordinary skill in the art to add P versus I-P as a lookup parameter to select between tables for overdrive processing in addition to the parameters for temperature, taste of a user, and

environment as already existed in *Lee/Ide*, or in other words to provide tables that contain parameters specified by the image data of the current vertical period and the image data of the directly previous vertical period that are referred to according to whether the input image data is interlaced or progressive.

As to **claim 5**, in addition to the rejection of claim 4 over *Lee, Ide*, and *Nitta*:

Lee, Ide, and *Nitta* discloses the claimed invention except for the enhancing conversion parameter in a case where the input image data is a progressive signal being smaller (or larger) than the enhancing conversion parameter in a case where the input image data is an interlace signal. It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the optimum value for each type of signal, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272,205 USPQ 215 (CCPA 1980).

As to **claim 5**, in addition to the rejection of claim 4 over *Lee, Ide*, and *Nitta*,:

As described so far *Lee, Ide*, and *Nitta* discloses the claimed invention except for the enhancing conversion parameter in a case where the input image data is a progressive signal being smaller (Examiner assumes that larger is

meant) than the enhancing conversion parameter in a case where the input image data is an interlace signal.

Nitta further discloses that the display can be improved for some features of I-P signals if overdrive correction is reduced or eliminated (see for example Fig. 21); that is there was a recognized need in the art to reduce overdrive for some features of I-P signals. Given the apparatus as disclosed by *Lee*, *Ide*, and *Nitta*, it would have been obvious to one of ordinary skill in the art to try reducing the overdrive correction values for I-P signals within the range of full correction to zero correction, which represents a finite number of predictable potential solutions to the recognized need. One of ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success.

As to **claim 5**, in addition to the rejection of claim 4 over *Lee*, *Ide*, and *Nitta*,:

As described so far *Lee*, *Ide*, and *Nitta* discloses the claimed invention except for the enhancing conversion parameter in a case where the input image data is a progressive signal being smaller (Examiner assumes that larger is meant) than the enhancing conversion parameter in a case where the input image data is an interlace signal.

Examiner takes official notice that it was well known to those of ordinary skill in the art at the time of the invention that interlaced signals have contour noise issues that result in image degradation with overdrive processing. As

evidence for this see for example WO0304104 to Sugino et al. (also published as US2004/0263495 in which see for example [0013]). Thus there was a recognized need in the art to reduce overdrive for some features of I-P signals. Given the apparatus as disclosed by *Lee*, *Ide*, and *Nitta*, it would have been obvious to one of ordinary skill in the art to try reducing the overdrive correction values for I-P signals within the range of full correction to zero correction, which represents a finite number of predictable potential solutions to the recognized need. One of ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success.

Claim 15 represents the method implicit in the apparatus claimed in claim 4 and is rejected on the same grounds and arguments as claim 4.

Conclusion

12. The prior art made of record.

U.S. Patent Application Publication No. 2004/0263495 is added to the record as a convenient English language reference for WO03041044, which was cited on an IDS by Applicant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT R. RAINEY whose telephone number is

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(571)270-3313. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571) 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RR/

/Amare Mengistu/

Supervisory Patent Examiner, Art Unit 2629